

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
29 December 2004 (29.12.2004)

PCT

(10) International Publication Number
WO 2004/113724 A3

(51) International Patent Classification⁷: **F01B 13/04**

(21) International Application Number:
PCT/US2004/019467

(22) International Filing Date: 18 June 2004 (18.06.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/479,413 18 June 2003 (18.06.2003) US

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(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM,

AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

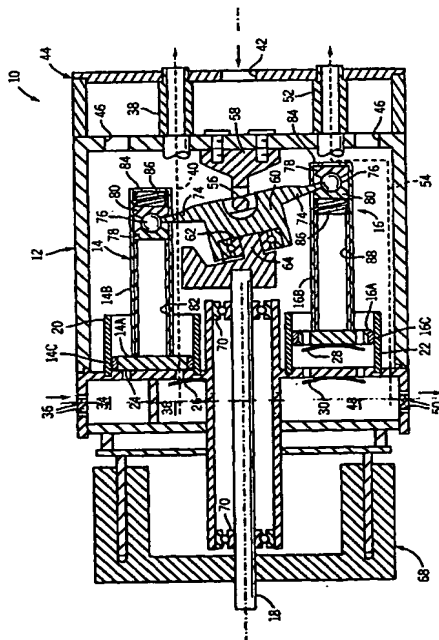
Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(88) Date of publication of the international search report:
30 June 2005

[Continued on next page]

(54) Title: **HYBRID NUTATING PUMP**



(57) Abstract: A nutating pump has a cross-type universal joint connecting a nutating member to a pump housing, ball joints connecting the nutating member to piston rods, and the piston rods fixed to piston heads so that the piston heads wobble in pump cylinders.



For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/19467

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : F01B 13/04

US CL : 92/12.2

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 92/12.2, 71; 91/499; 74/60

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
nutating, pump, piston, swash, wobble, ball, socket, spherical, bearing

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2003/0002990 A1 (REITZIG) 02 January 2003 (02.01.2003), figure 4.	1,10
Y	US 6,450,777 B2 (LYNN et al.) 17 September 2002 (17.09.2002), figures 3 and 6	1,10
A	US 6,439,857 B1 (KOELZER et al.) 27 August 2002 (27.08.2002), figure 3	2, 4, and 5
A	US 5,079,996 A (ABOUSABHA et al.) 14 January 1992 (14.01.1992), figure 1	2, 4, and 5
A	US 5,007,385 A (KITAGUCHI) 16 April 1991 (16.04.1991), figure 5	1, 2, 4, and 5
A	US 4,934,253 A (BERTHOLD et al.) 19 June 1990 (19.06.1990), figure 1	1, 2, 4, and 5

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☐ See patent family annex.

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Date of the actual completion of the international search

14 March 2005 (14.03.2005)

Date of mailing of the international search report

11 MAY 2005

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